

The Association of Exploration Geochemists - AEG
Sociedade Brasileira de Geoquímica - SBGq

XIII International Geochemical
Exploration Symposium

RIO
89 **II** Brazilian Geochemical
Congress

Abstracts

Rio de Janeiro, Brazil
October 1-6, 1989

Concluding, Mn-oxides constitute the initial trap for REEs, which are derived from the weathering of alkaline rocks. Fe, Mn, Ba and REE may have originally precipitated in autochthonous weathering material or as cement in colluvial deposits, forming duricrusts or pisolites. Here, Ce and HREE characteristically reveal positive anomalies in the secondary mineral phases while the positive Eu anomaly indicates heritage of high proportions of immaturely weathered feldspars, which constitute part of the skeleton. In the drier regions of Bahia, Mn oxides have essentially remained stable. Remobilization only took place on a small scale, Mn and REE reorganizing in secondary Mn minerals in the zone of hydromorphism and restricted drainage. In the more humid coastal regions of Bahia, however, the ferrallitic weathering environment may have resulted in major remobilization of REE's from Mn-phases and kaolinitic weathering material and subsequent fixation in zones of restricted drainage above the bedrock. Absolute supergene enrichment of REE can be observed, characterized by the nearly total disappearance of the Eu-anomaly and

a distinct Ce-anomaly, indicating oxidizing conditions. HREE's are depleted in this environment. Further investigations beyond this initial stage of research will elucidate in detail the bonding of REE's and the morphological and bedrock control of profile development and REE-distribution over the whole area of SE-Bahia.

REFERENCES

- CBPM. 1976. Projeto Rochas Alkalinas, Phase I + II, Vol. 1. 160 pp.
- MARKER, A. 1988. Lateritische Verwitterungsdecken über ultramafischen Gesteinskomplexen in Brasilien und den Philippinen. - ph.D. Thesis (unpub.), RWTH Aachen, 319 pp.
- de OLIVEIRA, J.J. 1988. O papel das concreções ferro-manganesíferas na concentração de terras raras em solo derivado de rochas graníticas ácidas em ambiente semi-árido.
- Anais XXXV Cong. Bras. de Geol., Belém, Pará, 4, 1853-1860.

PRELIMINARY CHARACTERIZATION OF THE SUPERGENE EVOLUTION OF THE CARBONATITE ROCKS OF THE JUQUIÁ (SP). ALKALINE-CARBONATITE COMPLEX WITH PHOSPHATE ENRICHMENT

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Apatitic phosphate ores are often associated to alkaline carbonatitic intrusive bodies; in Brazil, several examples can be reported: Anitápolis, Araxá, Catalão, Tapira, Jacupiranga, Ipanema, Barra do Itapirapuã, Juquiá, Mutum, etc.

At Juquiá, the alkaline carbonatitic complex includes a berylite containing dolomite, apatite and minor amounts of phlogopite, magnetite, baryte and other accessory minerals. The carbonatite body forms a continuous lithological unity at the present erosion level, being, in this sense different from other complexes, where carbonatites occur as veins or dykes.

Several analytical studies were carried out on samples from the weathering profile. The first results allowed a preliminary recognition of some weathering facies and

gave an outline of the phosphate behaviour. Chemical and mineralogical evolution during weathering, leading to the development of isalteritic facies in the lower and medium levels, and alloteritic facies in the upper levels were established.

Two mechanisms of phosphate enrichment were recognized: relative accumulation, originated by dissolution of carbonates, and absolute accumulation, demonstrated by several generations of secondary phosphates.

The secondary phosphates are apatitic in the isalteritic facies, as due to the lithological context (only carbonatite). On the other hand, the upper alloteritic parts contain kaolinite and aluminium phosphates (cran-dallite group) showing a possible contribution from the surrounding alkaline silicatic rocks.